**FIG. 1**

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	SAMPLE A	SAMPLE B	SAMPLE C	SAMPLE D
FINAL Ge COMPOSITION	100 %	100 %	50 %	100 %
GRADING RATE (% Ge μm^{-1})	5	10	10	10
TOTAL EPITAXIAL THICKNESS (μm)	23	12	6.5	12
GROWTH TEMPERATURE ($^{\circ}\text{C}$)	750	800	750	50-76%: 750 76-100%: 550
GROWTH PRESSURE (mT)	25	50	25	50-76%: 25 76-100%: 3
CMP AT 50 %	NO	NO	—	YES
THREADING DISLOCATION DENSITY (cm^{-2})	$1 \pm 0.1 \times 10^7$	$1-5 \times 10^7$	$6.3 \pm 0.1 \times 10^6$	$2.1 \pm 0.2 \times 10^6$
CRACK DENSITY (cm^{-1})	47 ± 5	0	0	0
PARTICLE DENSITY (cm^{-2})	1250 ± 100	600 ± 40	50 ± 5	150 ± 10
RMS ROUGHNESS (nm)	35.9	47	37.3	24.2
α_{\perp} OF TOP LAYER ($^{\circ}$)	5.6559	5.6558	5.5327	5.6597
α_{\parallel} OF TOP LAYER ($^{\circ}$)	5.6559	5.6552	5.5352	5.6409

GROWTH PARAMETERS AND CHARACTERIZATION RESULTS OF SAMPLES A-D

FIG. 2

205220.68222001
1002689.022502

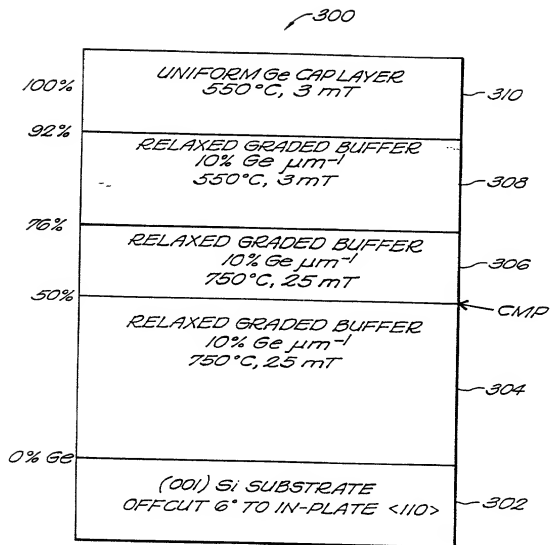


FIG. 3



FIG. 4

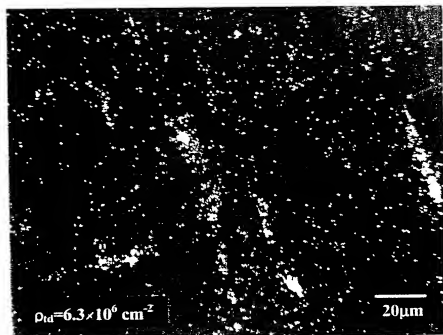


FIG. 5A

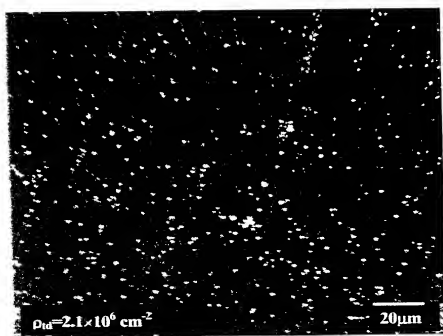


FIG. 5B